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NEW DISTRIBUTION RECORDS FOR *ERYTHRANTHE* (PHRYMACEAE)

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ABSTRACT

New geographic distribution records are reported for various species of *Erythranthe* sect. *Simiola* and sect. *Mimulosma*, updating those from published studies in 2012 by Nesom. New maps are provided for *E. arvensis*, *E. breviflora*, *E. caespitosa*, *E. corallina*, *E. decora*, *E. grandis*, *E. guttata*, *E. hallii*, *E. latidens*, *E. inodora*, *E. microphylla*, *E. moniliformis*, *E. moschata*, *E. nasuta*, and *E. tilingii*; specimen citations for new records are provided for *E. arvensis*, *E. decora*, *E. geniculata*, *E. inflatula*, *E. hallii*, *E. marmorata*, *E. microphylla*, *E. nasuta*, *E. pardalis*, *E. patula*, and *E. scouleri*.

KEY WORDS: *Erythranthe*, Phrymaceae, distribution records, maps

Study at CAS-DS, CHSC, OSC-ORE-WILLU, and PH and of loans of specimens from UBC and WTU have provided new records of geographic distribution for species of *Erythranthe* sect. *Simiola* and sect. *Mimulosma*, supplementing and extending those earlier published (Nesom 2012a, 2012b).

SECT. SIMIOLA

Erythranthe tilingii (Regel) Nesom and **E. caespitosa** (Greene) Nesom

Additional records for *Erythranthe tilingii* and *E. caespitosa* give a fuller picture of their distributions (Maps 1 and 2). Records for *E. tilingii* mapped by Nesom (2012a) in northwestern Washington prove instead to be *E. decora* A.L. Grant (Nesom).

Erythranthe decora (A.L. Grant) Nesom and **E. scouleri** (W.J. Hook.) Nesom

The distribution of *Erythranthe decora* (Map 3) is relatively discrete in Vancouver Island and western Washington to western Oregon, except for the record from Clearwater Co., Idaho (see Nesom 2012a for citation). The collection studied from Vancouver Island was made of relatively short plants, 10–15 cm high, but otherwise of relatively characteristic morphology: Vancouver Island, Douglas Peak, near Port Alberi, growing around seepage area at the base of a steep slope, 1350 m, 30 Jul 1983, *Kerick & Wall s.n.* (OSC).

Erythranthe scouleri remains a poorly understood and only tentatively accepted taxon. Localities mapped earlier (Nesom 2012a) in Gilliam and Sherman counties, Oregon, were based on a misunderstanding of the locality data. All collections have been from near the mouth of the Columbia River in Clatsop and Columbia counties. Earlier citations (Nesom 2012a) are repeated and new ones are added here: Clatsop Co.: S shore of Columbia River, above Astoria, 1883, *Meehan 15739* (MO); John Day, 20 Aug 1902, *Sheldon 9.10180* (ORE-2 sheets; UC); John Day, near Tongue Point, 20 Aug 1902, *Sheldon 11136* (MO); Tongue Pt. near Astoria, just inside the pt. in sandy tide, rocks and sand, near some old buildings, 27 Aug 1883, [collector not specified] *302* (ORE); Tongue Pt., 3 mi above Astoria and ca. 1/2 mi inside and above the pt. in front of some old dwellings, 21 Aug 1889, [collector not specified] *302* (ORE). Columbia Co.: Wallace Island, estuarine island, 46.15005, -123.24667, 19 Jul 2001, *Schooler s.n.* (OSC). The protologue gave the type locality only as "Columbia River."

Erythranthe corallina (Greene) Nesom

Additional records indicate that the distribution of *Erythranthe corallina* is relatively continuous in the California Sierra from Sierra and Nevada counties south to San Bernadino and Los Angeles counties (Map 4).

Erythranthe marmorata (Greene) Nesom

Additional collections examined. **California**. Amador Co.: Ione, 18 Mar 1921, *Eastwood 10070* (CAS). Amador/Calaveras Co.: Mokelumne River, 1800 ft, Apr 1892, *Hansen 473* (DS). Calaveras Co.: Mokelumne Hill, no date, *Blaisdell s.n.* (CAS-2 sheets); Camp Nine Road NE of Vallecito, 1100-2000 ft, 5 Apr 1978, *Howell 52758* (CAS). Fresno Co.: ca. 58 km ENE of Fresno (FSC), Sierra National Forest, Patterson Bluffs, local annual growing in exposed carbonate gravel, 2 May 1997, *York 1808* (CAS). Tuolumne Co.: volcanic table land, 1 mi W of Keystone, 1 Apr 1923, *Abrams 16069* (DS); Spring Gulch above Bear Creek, rock crevices, 1050 ft, 11-16 Apr 1919, *Ferris 1626* (CAS, DS); Italian Bar, 14 May 1915, 2200 ft, *Grant 18* (DS).

The record for Fresno County appears to be somewhat disjunct from the main range and the plants are more densely villous than characteristic elsewhere, but their identification as *E. marmorata* otherwise seems secure.

Erythranthe pardalis (Penn.) Nesom

Additional collections examined. **California**. Amador Co.: Middle Fork, 1500 ft, [no date], *Hansen 135* (DS); Middle Fork, 1500 ft, Apr 1892, *Hansen 1288* (DS); Elsie's Creek, 2700 ft, 7 Apr 1896, *Hansen 1626* (DS). Amador/Calaveras Co.: Norte Bar, 1000 ft, Apr 1895, *Hansen 1050* (DS). Calaveras Co.: near San Andreas, 24 Apr 1941, *Eastwood & Howell 8710* (CAS); Natural Bridge on Coyote Creek, 1500 ft, 1976, *Menzies 142* (CAS). El Dorado Co.: 2 mi NW of Clarksville, SE slope of Bass Lake, under and along edge of large serpentine rocks, 5 May 1967, *Crampton 7859* (CHSC); Happy Valley Road, 1.1 mi NE (69°) of Somerset, just W of the bridge over the Cosumnes River (Camino 7.5 Q.; 38° 39' 13" N, 120° 39' 58" W), pine forest and riverside chaparral, 1785 ft, plants under 15 mm tall were abundant, growing with *Sedum spathulifolium* on a wet, mossy, rock bank, the tall plants were uncommon and grew from rock cracks along with the small specimens, 14 May 2010, *Helmkamp 16041* (BRIT, ex UCR); S side of S Fork American River, 3/4 mi NW of mouth of Weber Creek, dry sandy soil along river, moist shady boulders, 600–700 ft, 23 Apr 1978, *Stebbins 7839* (CAS). Tehama Co.: Dales Lake Ecological Reserve, W side of Manton Rd (A6) ca. 2 mi N of Dales Station on Hwy 36, ca. 14 mi NE of Red Bluff, localized population in crevices on a shaded outcrop on the S edge of the basalt ridge crossing the NE corner of the reservoir, blue oak woodland, 740 ft, 10 Apr 1995, *Oswald & Ahart 6642* (CHSC, JEPS).

The CHSC duplicate of *Erythranthe pardalis* from Tehama County (*Oswald & Ahart 6642*) confirms its presence in that region, where it is apparently disjunct from the main range of the species.

Erythranthe arvensis (Greene) Nesom

Erythranthe arvensis has a relatively wide distribution but is not as commonly collected as some other widely distributed species. It is mapped here (Map 5) along with putative close relatives. The apparently disjunct record for Montana is the first known to me for that state: **Montana**. Lewis & Clark Co.: vic. of Helena, [no date], *F.D. Kelsey s.n.* (PH).

Erythranthe hallii (Greene) Nesom

Additional collections examined. **Colorado**. Boulder Co.: W of Boulder, rocky mossy streamlet, ca. 5500-5600 ft, 14 Jun 1915, *Pennell 5827* (PH). Clear Creek Co.: Georgetown, 18 Jul 1892, *Patterson 294* (PH- 2 sheets). Fremont Co.: canyon of the Arkansas River near Canon City, moist gravel of stream bed, 5400 m, 28 Jun 1950, *Ripley & Barneby 10172* (PH). Grand Co.: Sulphur Springs, 23 Jul 1906, *Osterhout 3321* (DS). Jefferson Co.: Morrison, 5 Jun 1881, *Smith s.n.* (PH). Larimer Co.: Horsetooth Mt.,

along streamlet, base of rocks, ca. 5700-5800 ft, 17 Jun 1915, *Pennell 5851* (PH); W of Horsetooth Mt., wet shady ravine, ca. 5800-6000 ft, 17 Jun 1915, *Pennell 5858* (PH). Saguache Co.: Sargents, moist soil along stream, woods, ca. 8700-9300 ft, 2 Aug 1915, *Pennell 6299* (PH).

Records of *Erythranthe hallii* from Fremont and Saguache counties are apart from the otherwise relatively compact distribution in north-central Colorado (Map 5) previously reported for the species.

Erythranthe charlestonensis Nesom

Additional collection examined. **Nevada**. Clark Co.: Griffith Mine Canyon, N of Charleston Peak Resort, Charleston Mts., mt. spring, 8000 ft, 27 Jul 1938, *Train 2221* (SMU). Figure 1.

This plant, from near the type locality of *Erythranthe charlestonensis*, is much larger than those of previously cited collections and it has glandular hairs. The distinction between *E. charlestonensis* and *E. cordata* should be reexamined. Like other Charleston Mountains plants, however, and unlike *E. cordata*, the vestiture of *Train 2221* is minutely hirtellous.

Erythranthe guttata (Fischer ex DC.) Nesom and **E. grandis** (Greene) Nesom

Additional collections from Oregon fill in the distribution earlier outlined for *Erythranthe guttata* (Nesom 2012a). Two counties are added for the range of *Erythranthe grandis*. (Douglas and Clatsop counties, Oregon). Along the Oregon coast (Curry, Coos, Douglas, Lincoln, and Lane counties and probably north to Clatsop Co.), *E. grandis* tends to produce orbicular leaf blades and stems often are prostrate and rooting at the nodes.

Erythranthe microphylla (Benth.) Nesom

Additional collections essentially fill in the distribution earlier outlined (Nesom 2012a). Apparently disjunct populations of *Erythranthe microphylla* in Idaho and Nevada are documented here. Map 6.

Collections examined. **Idaho**. Boise Co.: cliffs to E of Fern Falls, 1.5 mi N of Elk Lake, Sawtooth Primitive Area, headwaters of S Fork Payette River above Sacajawea Hot Spring, 11-12 Jul 1944, *Hitchcock & Muhlick 9834* (CAS, DS). **Nevada**. Elko Co.: above Lamoille Canyon, Ruby Mts., moist rocky cascades, 7000 ft, 20 Jul 1938, *Pennell & Schaeffer 23302* (CAS).

Erythranthe nasuta (Greene) Nesom

Additional collections essentially fill in the distribution earlier outlined (Nesom 2012a). The record for *Erythranthe nasuta* in Utah is the first from that state known to the author. Map 7.

Collection examined. **Utah**. Wasatch Co.: Provo River canyon near Wildwood, moist shady ledges of limestone cliffs, 5000 ft, 8 Jun 1951, *Ripley & Barneby 10624* (CAS).

Erythranthe visibilis Nesom

Erythranthe visibilis from northeastern Michoacan, Mexico, includes the recently described *Mimulus minimus* E. Pérez-Calix & Zamudio (2011), which was preceded in name by a South American species (von Bohlen 1995). The species as *E. visibilis* was described from two collections made in 1910 and 1912, with only imprecise locality, but the description by Pérez-Calix and Zamudio is based on four recent collections by Sergio Zamudio and group from mountains about 1–2 km south of the small town of San Miguel de las Cuevas (about 22 air miles east-northeast of the center of Morelia). The plants occur on wet slopes and stream banks in woods of *Pinus-Quercus-Cupressus*, at altitudes of 2350–2400 meters. Pérez-Calix and Zamudio noted that these narrowly endemic populations are in an area of intense human influence and are vulnerable to extinction.

The description of *Mimulus minimus* from Michoacan also provides a more complete picture of the morphology and variability of the species. The stems are described as sometimes erect, the corolla tube is illustrated as well-exserted beyond the calyx margin, and the corolla throat with a few purple dots; the stamens are described as didynamous. But the tiny plants, including flowers and fruit, and annual duration, the tendency for reduced lateral calyx lobes, the villous-glandular vestiture, and the almost identical geography indicate that and *Erythranthe visibilis* and *M. minimus* are the same species.

Erythranthe visibilis Nesom, Phytoneuron 2012–40: 97. 2012. **TYPE**. **MEXICO**. **Michoacan**. Vicinity of Morelia, Cerros San Miguel, 2200 m, Dec 1910, *G. Arsene 5310* (holotype: MO).

Mimulus minimus E. Pérez-Calix & Zamudio [nom. illeg. superfl.], Acta Bot. Mex. 97: 32. 2011. **TYPE**: **MEXICO**. **Michoacan**. Mpio. Queréndaro: 1 km al S de San Miguel de las Cuevas, 19º 43' 45" N, 100º 50" 00" W, talud con escurrimientos temporales de agua, bosque de *Pinus-Quercus-Cupressus*, 2350 m, 28 Jan 2010, *S. Zamudio et al. 14713* (holotype: IEB, isotypes: EBUM, ENCB, MEXU). Not *Mimulus minimus* C. Bohlen, Gayana, Bot. 52: 13. 1995. Type from Chile.

SECT. MIMULOSMA

Erythranthe patula (Penn.) Nesom

A record for *Erythranthe patula* from western Montana is the first known to me from that state. **Montana**. Missoula Co.: Hay Spur, F. Fox Ranch, 3200 ft, 19 Jun 1924, *Kirkwood 1762* (DS).

Erythranthe geniculata (Greene) Nesom

Records at CHSC extend the range of *Erythranthe geniculata* northward into Butte, Sutter, and Yuba counties, an area apparently disjunct from the broader, more southern range of the species.

Representative collections examined. **California**. Butte Co.: Table Mt., N of Oroville, foothill woodland, in cracks of lava rocks, 400 m, 2 May 1978, *Ahart s.n.* (CHSC); numerous other collections of *E. geniculata* from Butte Co. are at CHSC. Sutter Co.: S side of the Southern Butte, Sutter Buttes, between cracks in rock, foothill woodland, 1200 ft, 21 May 1984, *Ahart 4623* (CHSC). Yuba Co.: ca. 1/2 mi W of Marysville Rd, ca. 1/2 mi N of Parking Area 3, Daugherty Hills Wildlife Area, ca. 5 air mi NE of Loma Rica, foothill woodland, 1296 ft, 11 Mar 2005, *Ahart 11608* (CHSC).

Erythranthe latidens (A. Gray) Nesom, **E. breviflora** (Piper) Nesom, and **E. inflatula** (Suksd.) Nesom

New records for these species (Map 8) primarily document earlier distribution points mapped by Nesom (2012b) from literature. Additional citations for *E. inflatula* in Oregon are these: Jackson Co.: Sam's Valley Desert, moist spots among rocks, 7 Jun 1930, *Henderson 13151* (ORE); dry watercourse, trail, 16 Jul 1936, *Peck 21339* (WILLU). Jefferson Co.: Grizzly Butte, wet basaltic soil , 1240 m, 18 Jun 1894, *Leiberg 275* (ORE). Josephine Co.: Grant's Pass, 24 May 1884, *Howell s.n.* (ORE). Lake Co.: greenhouse grown plants of seed collected from plants growing in moist to muddy margins of receding water, among rocks, Drews Res., 15 Jun 1996, *Carlson s.n.* (OSC). Linn Co.: Brownsville, low wet fields, 2 Jun 1932, *Hasken 151* (ORE-2 sheets). Wheeler Co.: Cottonwood Canyon, around springs, 1 Jun 1894, *Leiberg 156* (ORE).

Erythranthe moschata (Dougl. ex Lindl.) Nesom, **E. inodora** (Greene) Nesom, and **E. moniliformis** (Greene) Nesom.

Records for the state of Oregon from OSC-ORE-WILLU are added to earlier account (Nesom 2012b) and mapped here.

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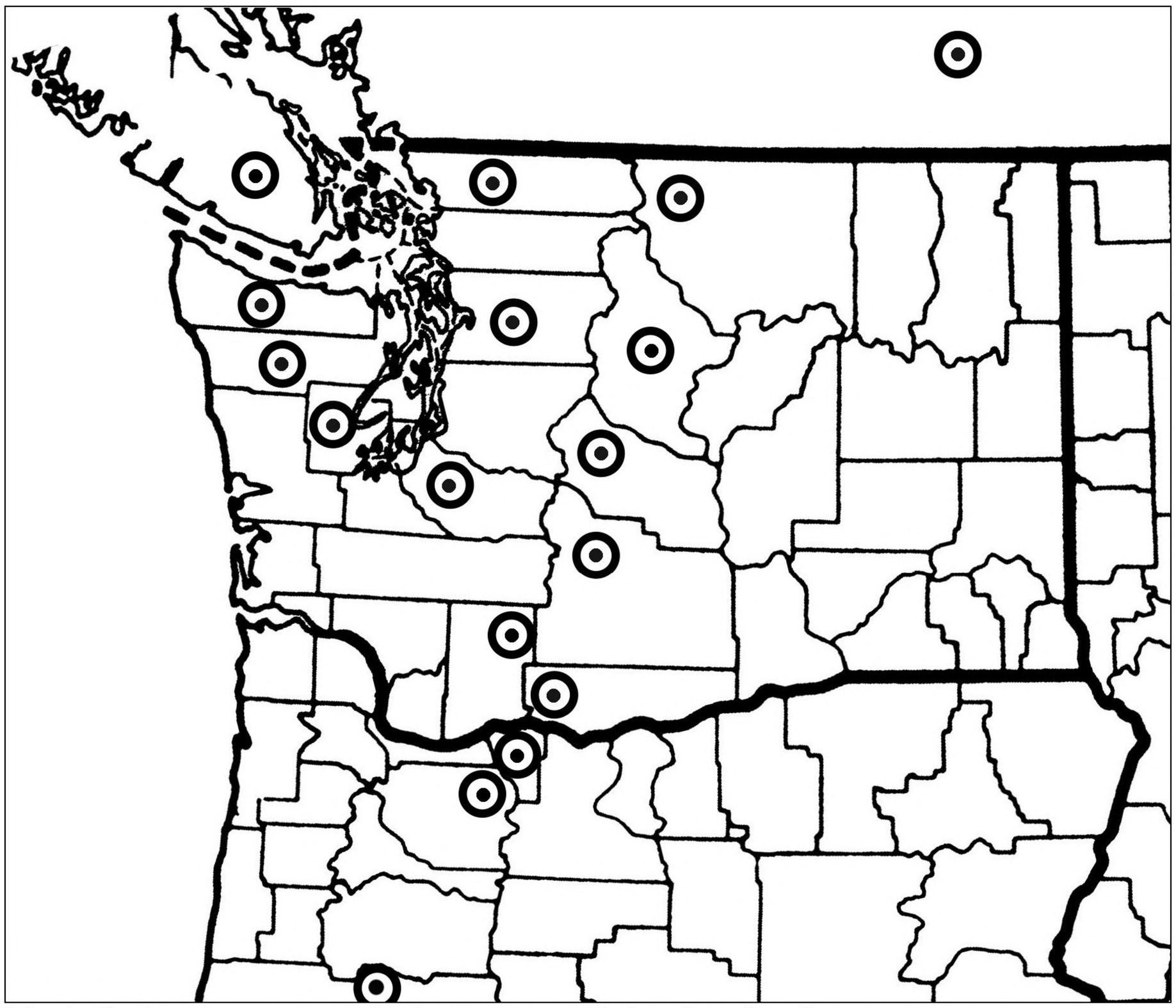
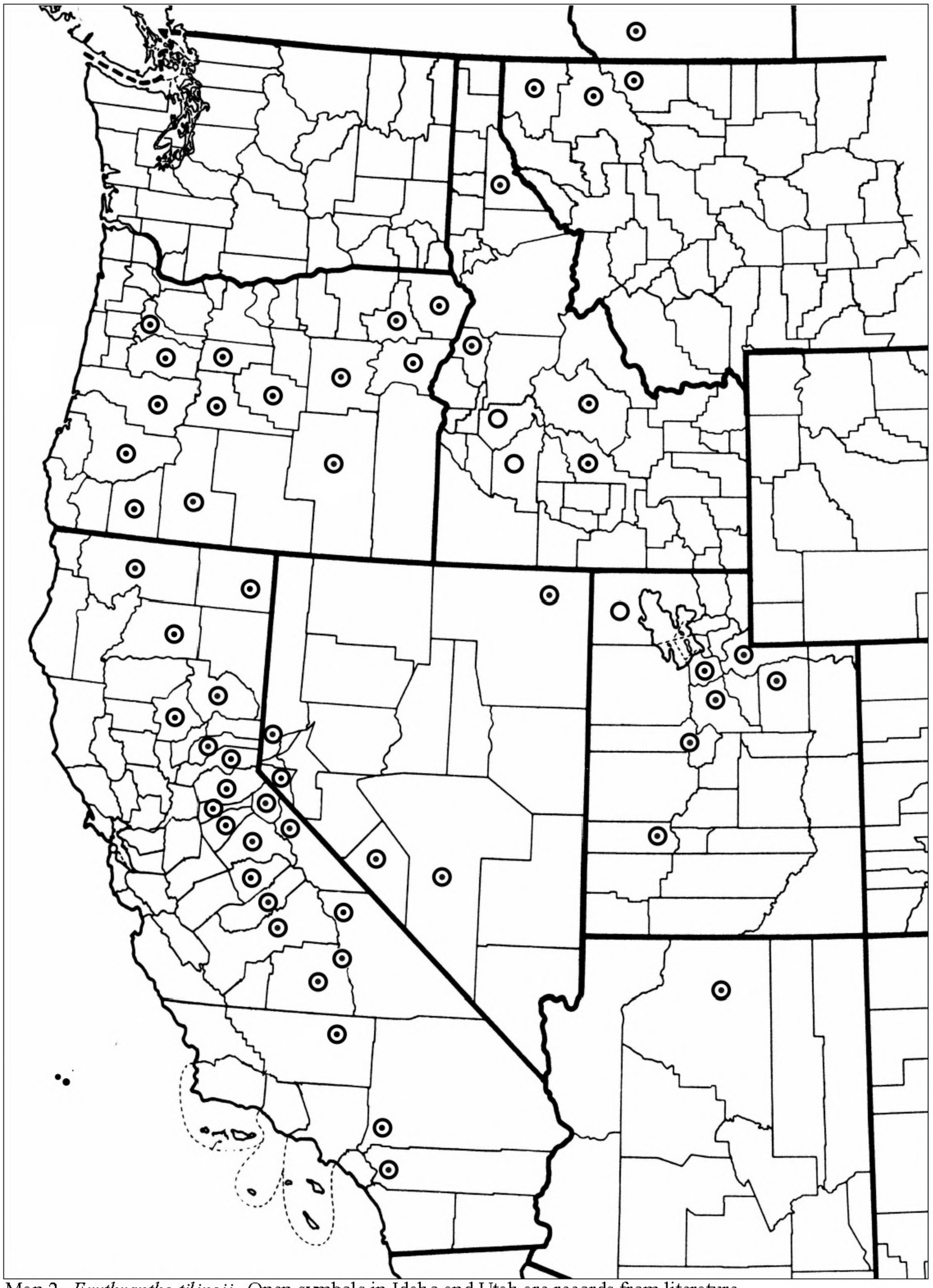
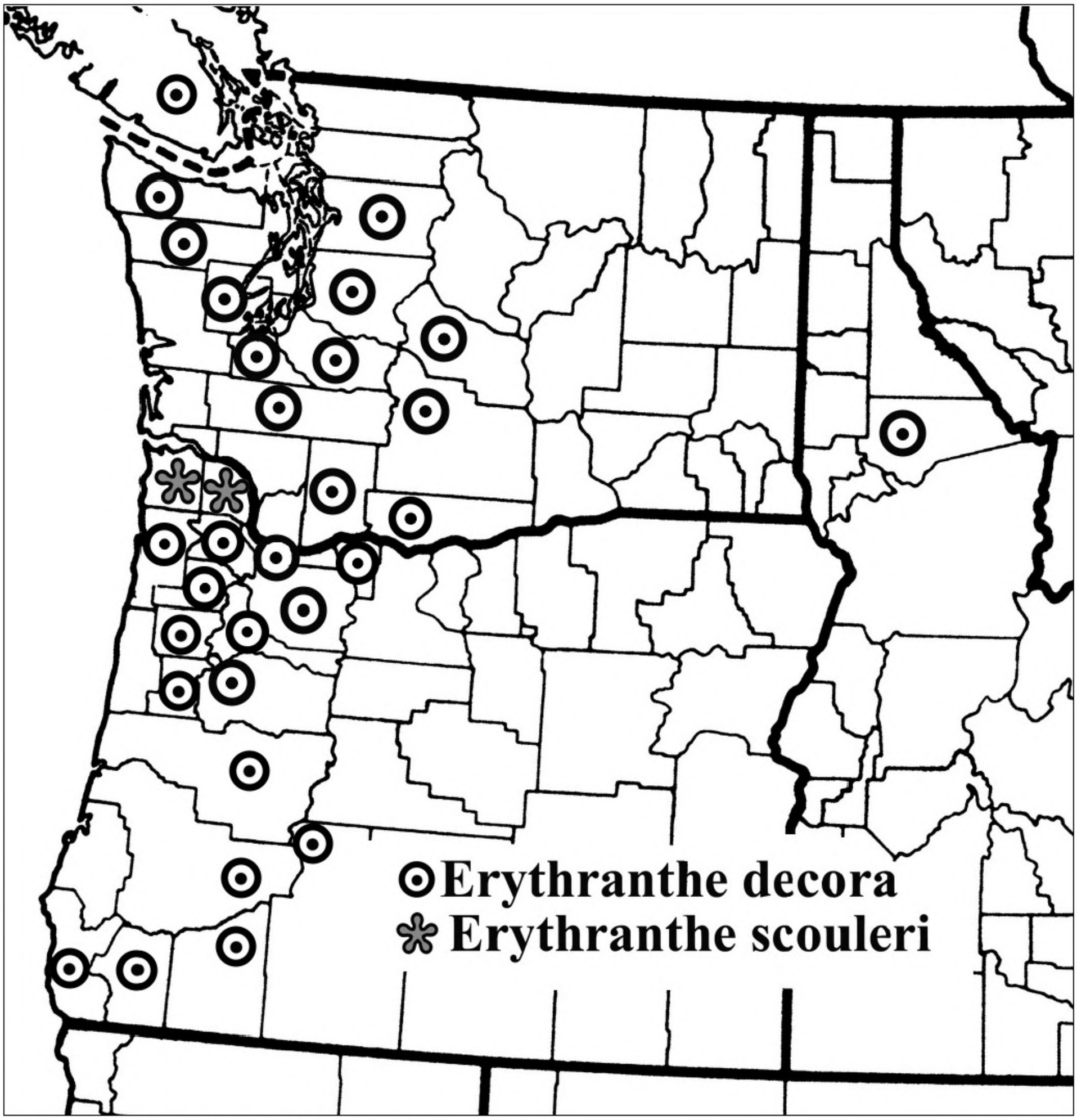


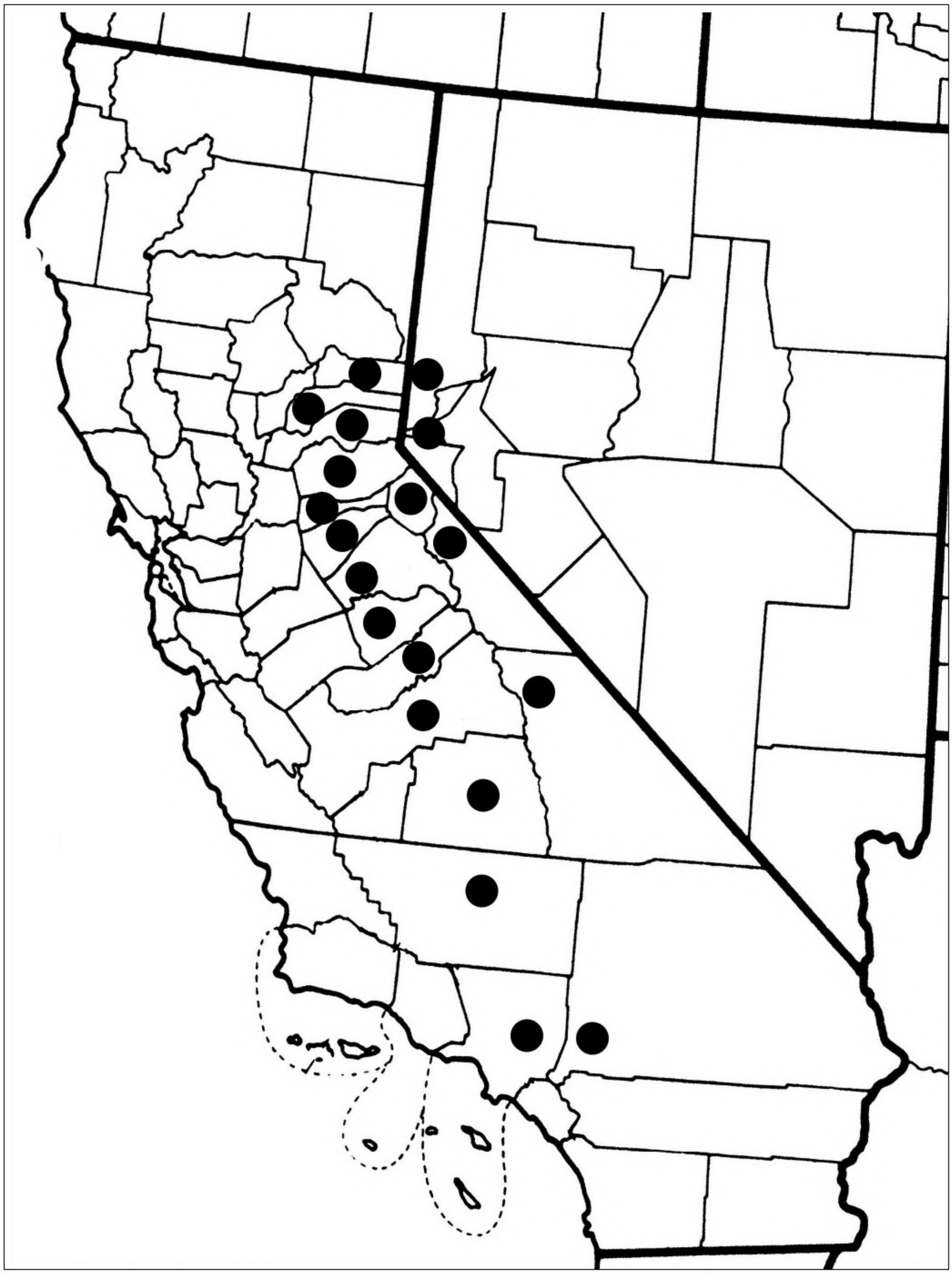
Map 1. *Erythranthe caespitosa*. Southernmost record is from Lane Co., Oregon.



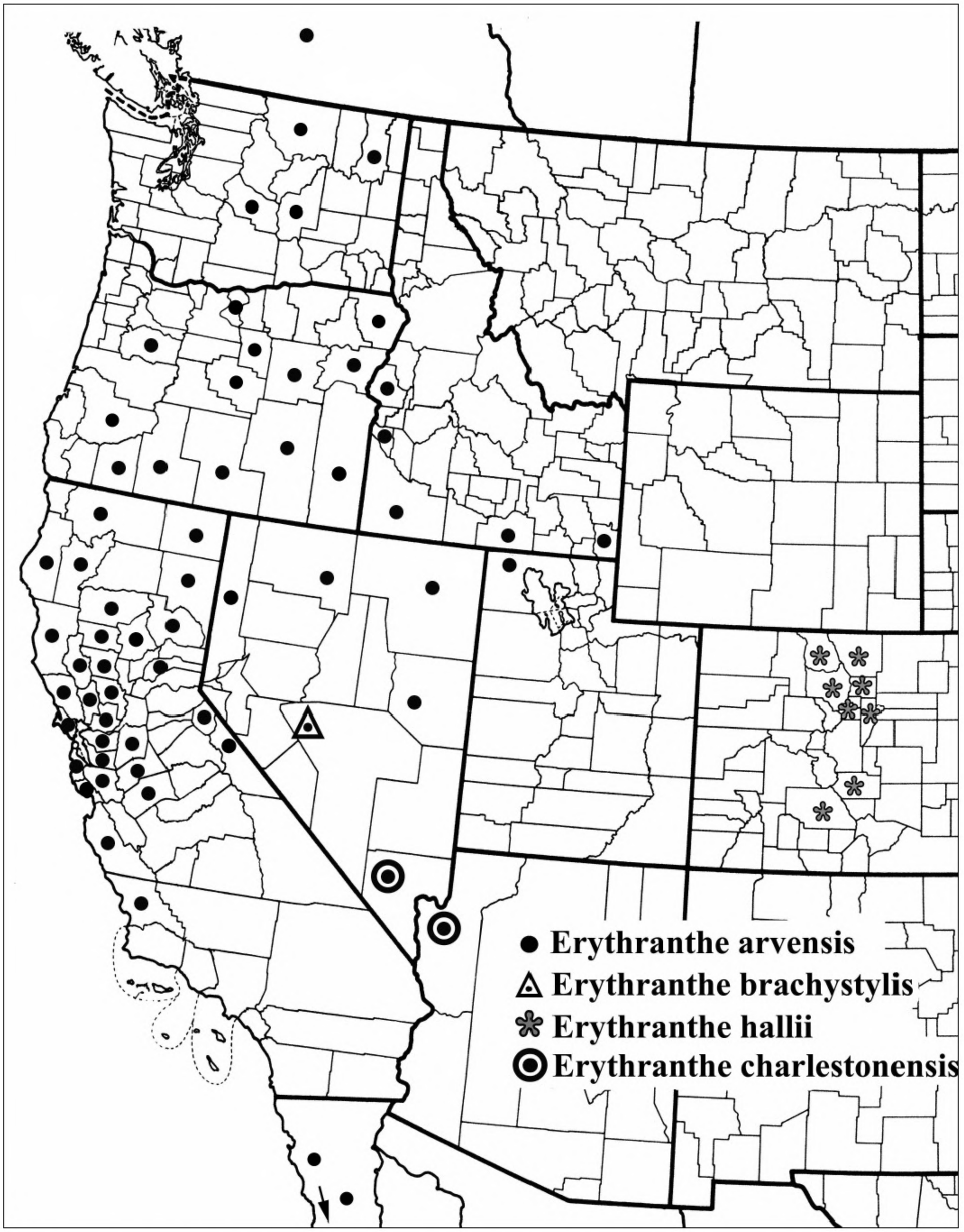
Map 2. *Erythranthe tilingii*. Open symbols in Idaho and Utah are records from literature.



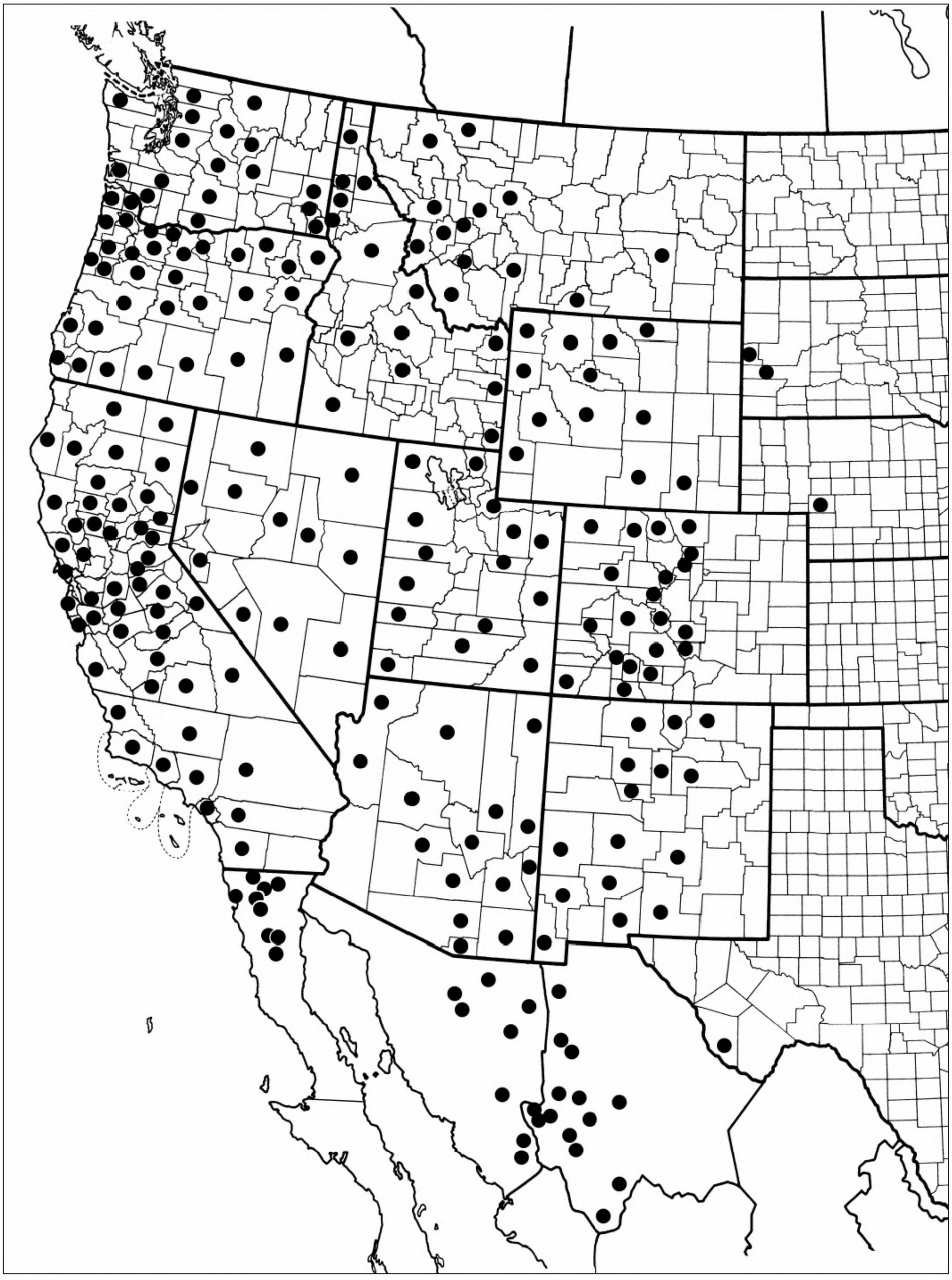
Map 3. *Erythranthe decora* and *E. scouleri*.



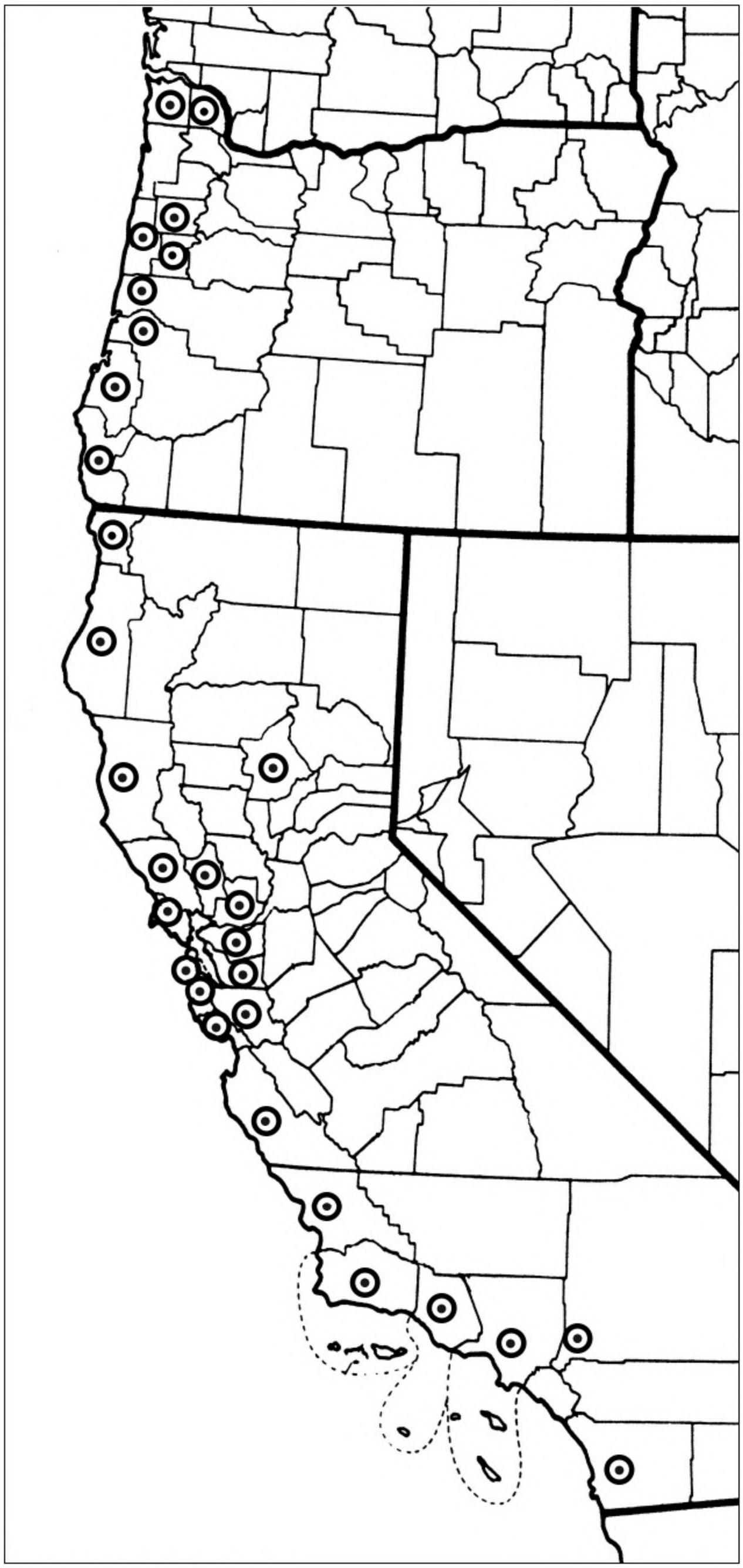
Map 4. *Erythranthe corallina*.



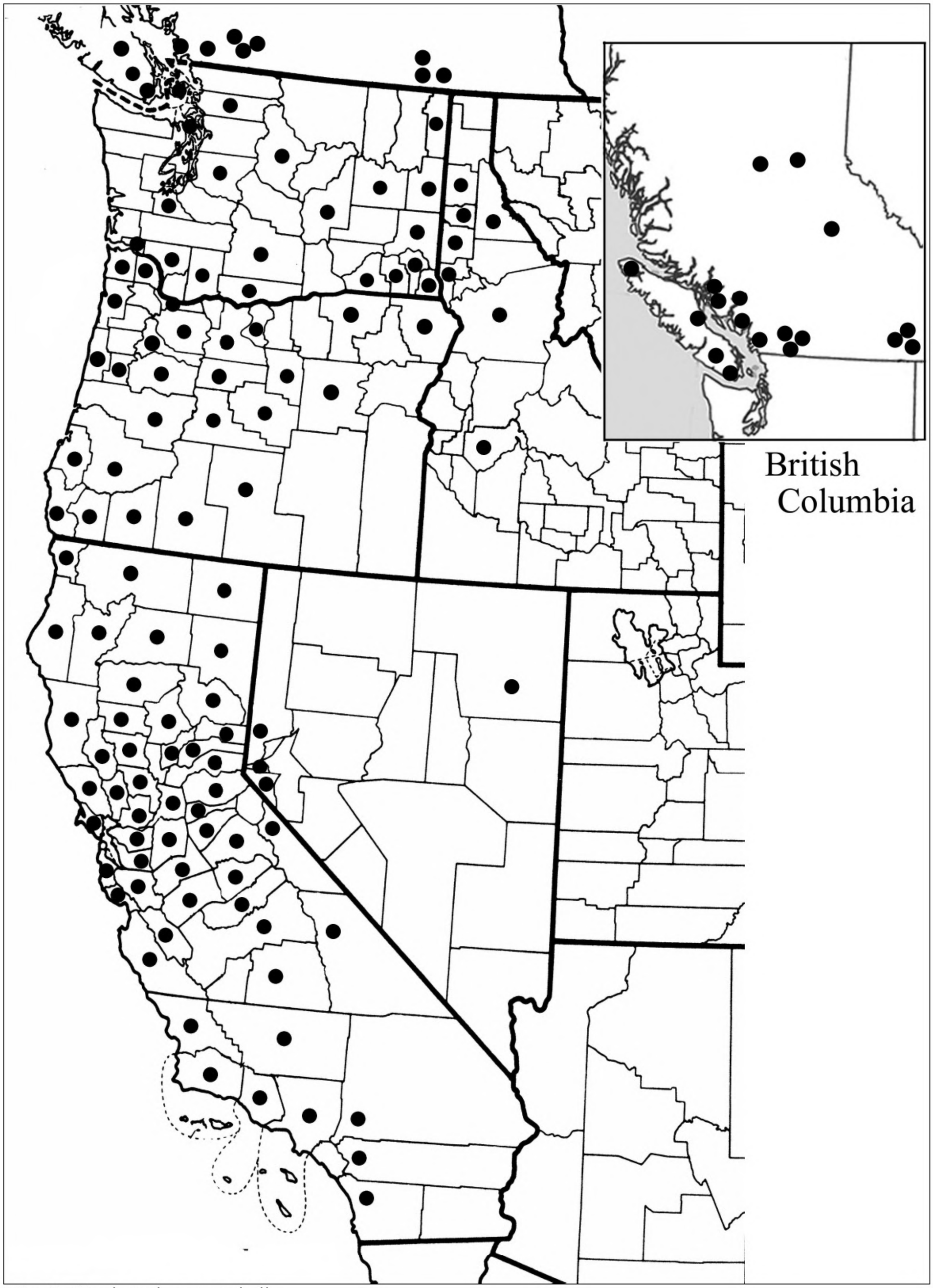
Map 5. *Erythranthe arvensis* and putative close relatives.



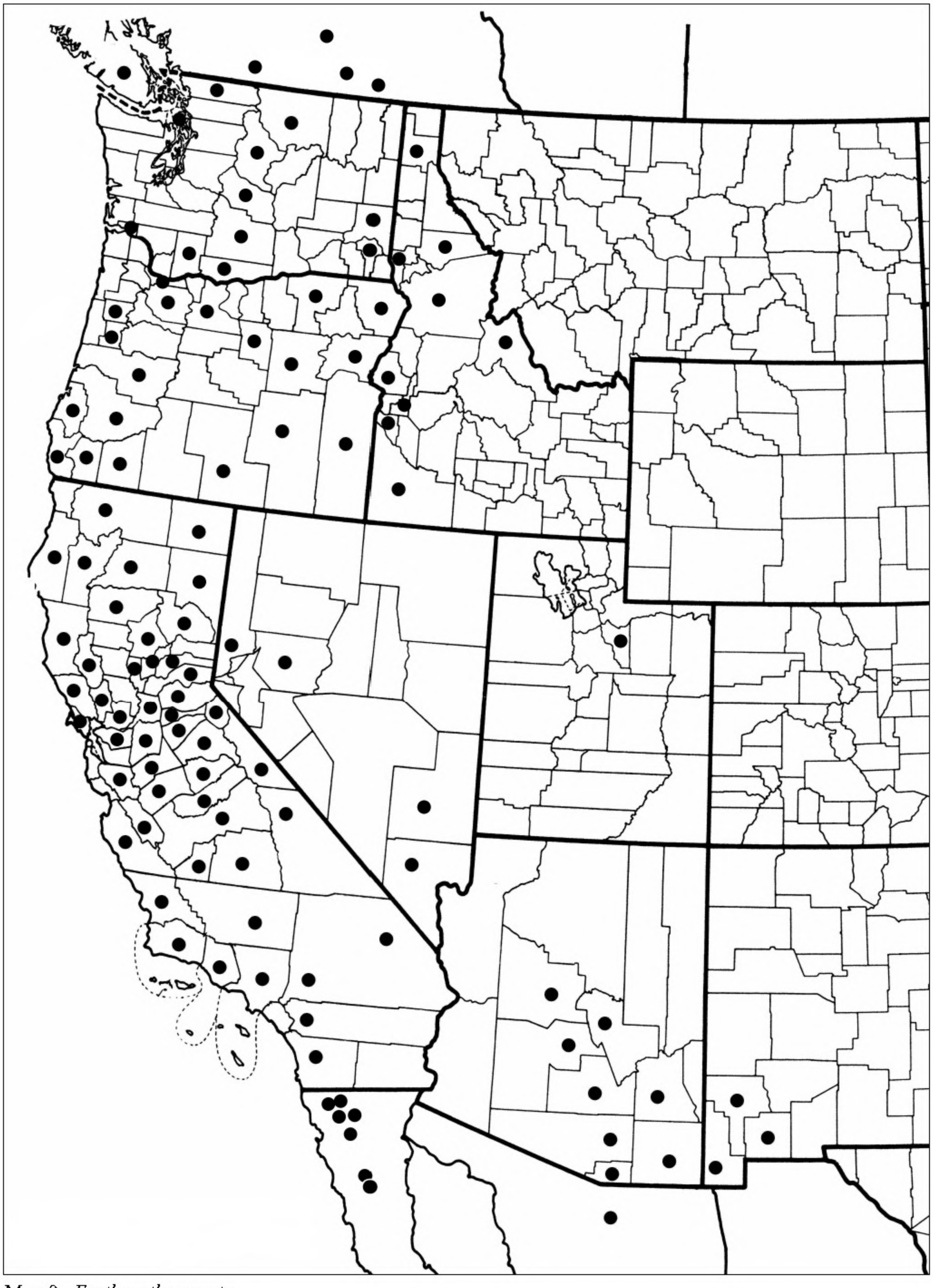
Map 6. *Erythranthe guttata.*



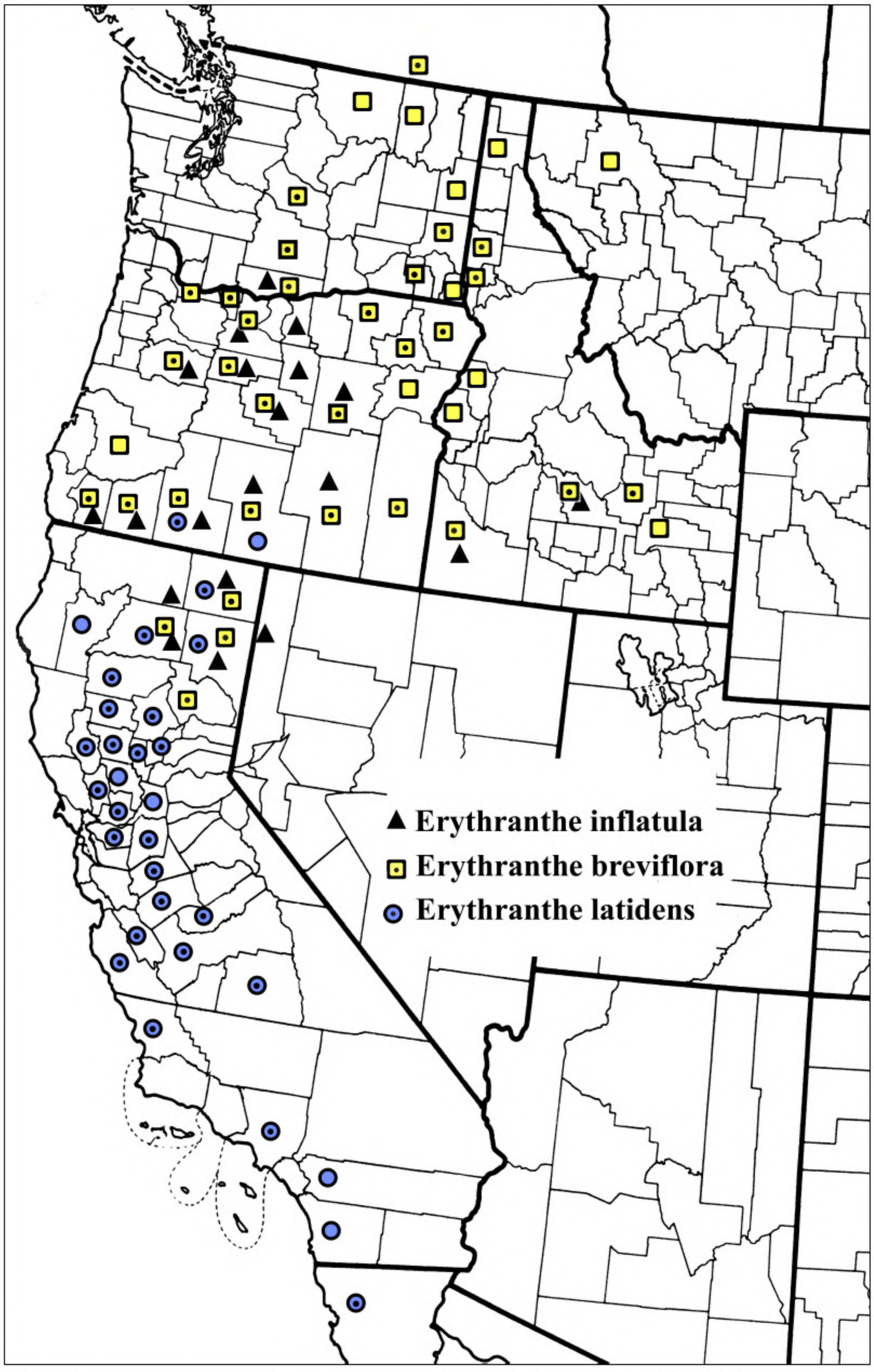
Map 7. *Erythranthe grandis*.



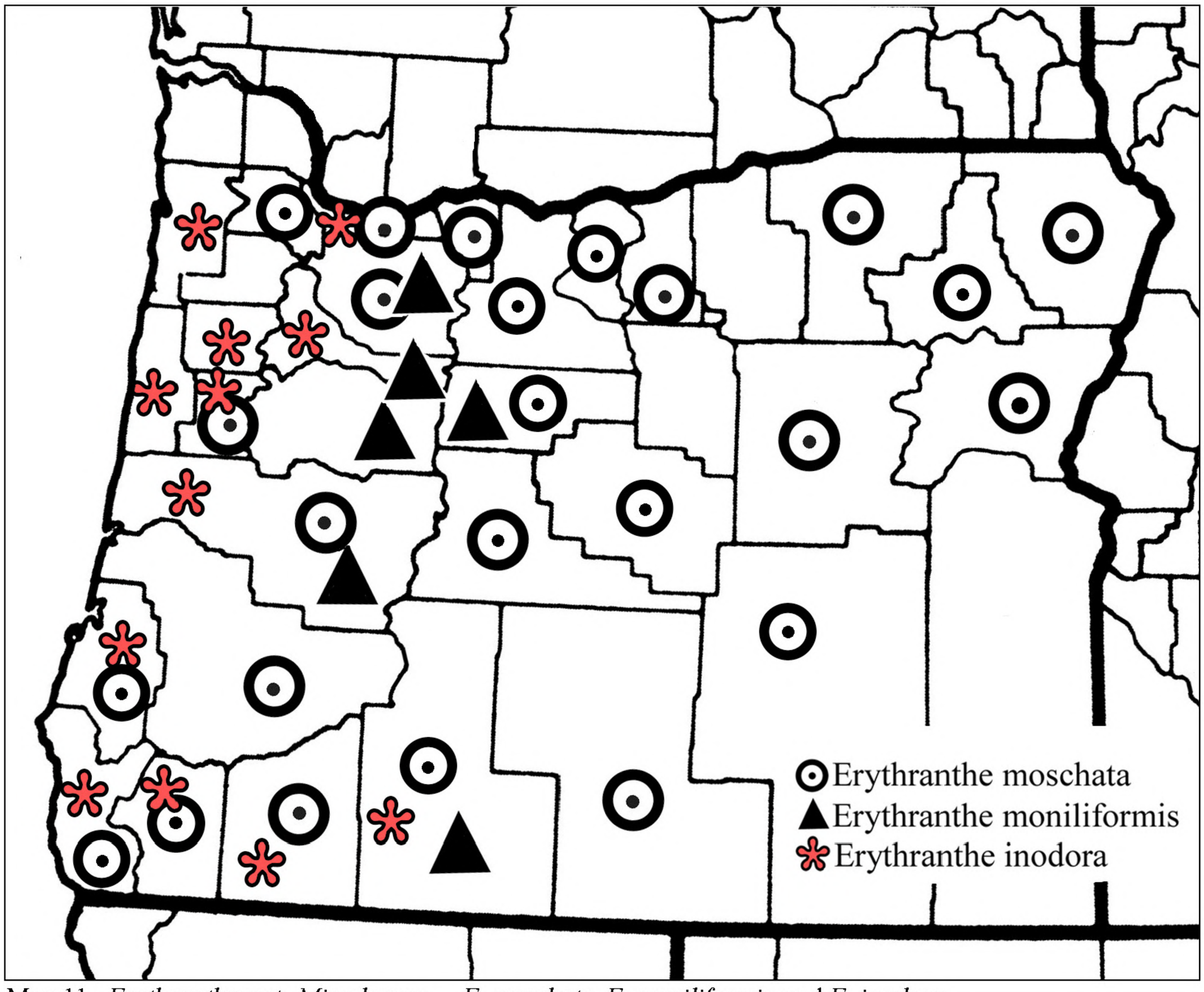
Map 8. *Erythranthe microphylla*.



Map 9. *Erythranthe nasuta.*



Map 10. *Erythranthe* sect. *Mimulosma* — *E. inflatula*, *E. breviflora*, and *E. latidens*. Open symbols are from literature.



Map 11. *Erythranthe* sect. *Mimulosma* — *E. moschata*, *E. moniliformis*, and *E. inodora*.